Questions and Answers on the RCRA Toxicity Characteristic Rule

BACKGROUND:	**The Environmental Protection Agency (EPA) issued a final toxicity characteristic (TC) rule on March 29, 1990, under the authority of §3001(g) and (h) of the Hazardous and Solid Waste Amendments (HSWA) of 1984. The final rule establishes the Toxicity Characteristic Leaching Procedure (TCLP) as a replacement for the Extraction Procedure Toxicity Test (EP Tox) [45 *Federal Register (FR)* 33084] and an update to the existing TCLP, which was promulgated under the Land Disposal Restriction (LDR) regulations (51 *FR* 40572). The rule also adds 25 organic chemicals to the existing list of 14 regulated toxicity characteristic waste constituents. The new TC fulfills the congressional mandate which directed EPA to examine and revise the EP Tox and to identify additional hazardous waste characteristics. This information brief provides questions and answers regarding the final TC rule.**
STATUTES:	**Resource Conservation and Recovery Act (RCRA) as amended by the Hazardous and Solid Waste Amendments Act of 1984 (HSWA)**
REGULATIONS:	**40 *Code of Federal Regulations* (*CFR*) 261, 264, 265, 268, 271, and 302.**
REFERENCES:	**Final rule: 55 *FR* 11798, March 29, 1990.** **Corrections: 55 *FR* 26986, June 29, 1990; 55 *FR* 31387, August 2, 1990; 55 *FR* 32733, August 10, 1990; 55 *FR* 39409, September 27, 1990; 55 *FR* 40873, October 5, 1990; 55 *FR* 46829, November 7, 1990; 58 *FR* 46049, August 31, 1993.** **EH-231 Memorandum, Subject: Toxicity Characteristic Rule, April 9, 1990.** **EH-413 Memorandum, Subject: NRC/EPA Guidance on the Testing Requirements for Mixed Waste, December 23, 1997.** **EH-413 Overview, Subject: Overview of Toxicity Characteristic Leaching Procedure (TCLP), November 11, 1997.**

Have there been changes in the TC rule since its promulgation in 1990?

As of the publication of this information brief, there have been no substantive changes in the TC rule since 1990, but 40 *CFR* 261.24(a) and Appendix II to part 261 were revised August 31, 1993 (58 *FR* 46049), to identify the TCLP as "Method 1311" in *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods*, EPA Publication SW-846.

Does the TC create a *de minimis* concentration that provides a clear answer to whether or not a waste is hazardous?

No. The TC is only a replacement for the EP Tox for defining which wastes exhibit the toxicity characteristic. It does not affect hazardous waste determinations for wastes that exhibit the reactivity, ignitability, or corrosivity characteristic, nor does it affect wastes that are otherwise listed as hazardous under 40 *CFR* 261 Subpart D (i.e., wastes listed as hazardous continue to be considered hazardous, whether or not they exhibit the TC).

What additional materials are likely to be regulated under the TC?

The final rulemaking added 25 organic chemicals to the eight metals and six pesticides already on the list of TC constituents, for a total of 39 regulated constituents. The TC potentially affects those solvent-containing wastes that are not currently regulated because the solvent is neither a spent solvent nor a discarded commercial chemical. For example, some commercial chemical products, such as paints, adhesives, and oils, that contain solvents such as methyl ethyl ketone, tetrachloroethylene, trichlorethylene, dichloroethylene, or benzene may be newly regulated under the TC. In addition, some metal-bearing wastes that passed the EP Tox may fail the TCLP,

which may be somewhat more aggressive for certain waste types.

Why didn't EPA add more metals to the list of TC constituents?

EPA stated that studies must first be conducted to resolve issues regarding the subsurface fate and transport of metals. Efforts will focus on the development of the metal specification model (MINTEQ) for existing regulated metals plus nickel and thallium. Pending further study, the TC will apply only to the eight existing metals at the same regulatory levels established under the EP Tox.

RCRA allows generators to use process knowledge and/or chemical analysis as the basis for characterizing wastes. Will process knowledge and reliance on information in Material Safety Data Sheets (MSDSs) be adequate for characterizing wastes under the TC?

Not necessarily. For example, preliminary data indicate that many materials containing organic constituents may fail the TCLP for benzene. For many of these materials, benzene is not a constituent that appears as an ingredient on the MSDS, nor is it a constituent that is used in the process generating the waste. This information suggests that process knowledge, even with strict controls on waste accumulation, may not be adequate to evaluate toxicity relative to the TCLP. Thus, while process knowledge can be used by the generator to determine that a waste is hazardous, when process knowledge is used to determine that a waste is *not* hazardous, the generator should be prepared to justify this conclusion. Treatment, storage, and disposal facilities (TSDFs) *must* use the TCLP as part of their waste analysis plan (40 *CFR* 264.13 and 265.13) to assure waste is properly managed within their facility.

The EP Tox provided for a structural integrity test. If a waste passed the test, particle size reduction was not required. Does the TCLP provide such a step and relief from the requirement to reduce particle size?

No. The TCLP does not include a structural integrity or equivalent test but instead requires particle size reduction for *all* wastes. Particle size must be reduced to allow passage of the material through a 9.5-mm sieve**,** or the surface area per gram of material must be equal to or greater than 3.1 cm^2.

Some of the constituents regulated under the TC are found in gasoline. Does this mean that wastes produced from the remediation of leaking underground storage tanks are potentially RCRA regulated?

Not if the wastes are hazardous due to exhibiting the TC for the newly regulated constituents only. Petroleum-contaminated media and debris that fail the TCLP for any of the new constituents (D018–D043) and are subject to corrective action under 40 *CFR* 280 are excluded from regulation as a TC-hazardous waste under 40 *CFR* 261.4.

Dielectric fluids from electrical equipment that contain polychlorinated biphenyls (PCBs) also often contain chlorinated benzenes, which are now regulated under the TC. Will such wastes have to be evaluated with the TCLP and possibly regulated under both RCRA and the Toxic Substances Control Act (TSCA)?

No. Section 261.8 excludes TSCA-regulated dielectric fluid containing PCBs and associated contaminated electrical equipment from RCRA if they are hazardous only because they fail the TCLP for the newly added constituents (D018–D043), which include common solvents and chlorinated benzenes.

What actions are required of existing U.S. Department of Energy (DOE) interim status and permitted RCRA facilities that manage waste that is regulated under the TC or contains TC constituents (D018–D043)?

Notification to EPA under RCRA §3010 is not required for facilities that have previously submitted such notification and received an EPA identification number. If they have not already done so, existing interim status facilities must submit an amended Part A to EPA (copy to state, if authorized to implement RCRA). Existing permitted facilities must submit a Class 1 permit modification. If necessary, a Class 2 or 3 modification must also be submitted.

What actions are required of TSDFs that are newly regulated?

Facilities that come under RCRA Subtitle C regulation for the first time must submit a §3010 notification and a Part A application to EPA. If the TC wastes will be managed in a land disposal unit, a Part B application must also be submitted.

What about the management of wastes that are in storage?

Wastes that are managed in an interim status or permitted hazardous storage facility are already deemed to be hazardous. The facility must determine if such wastes also fail the TCLP, using testing or process knowledge, to ensure that the continued

management of the waste is in compliance with all Subtitle C requirements, including permitting procedures. Facilities must also ensure that any *solid wastes* being managed are evaluated to determine if they are hazardous under the TCLP. Wastes not disposed of by the effective date of the rule (i.e., September 25, 1990) must be evaluated prior to treatment or disposal to ensure that hazardous wastes are not inadvertently treated or disposed of as non-hazardous.

Can a waste be exempted from listing as a hazardous waste but still be regulated under the TC?

Yes. Exemptions from listing [such as delistings under 40 *CFR* 260.20/22 and the mixture rule exemption under 261.3(a)] apply only to wastes listed under 40 *CFR* 261 Subpart D. Generators must still determine whether their wastes exhibit a hazardous waste characteristic. For example, under the mixture rule exemption for wastewaters, if the maximum weekly usage of solvents designated under the provision does not exceed specified values, the wastewater is exempt from being a listed hazardous waste. However, the wastewater may still be regulated if it exhibits any hazardous waste characteristic, including the TC. On the other hand, the TC rule does not apply to wastes that are already excluded from subtitle C regulations under 40 *CFR* 261.4(b). These wastes will continue to be exempt from regulation as hazardous wastes, even if they should fail the test for the toxicity characteristic for certain identified constituents (e.g., chromium).

Are wastes newly identified as hazardous under the TC banned from land disposal immediately?

No. Under the HSWA LDRs, EPA has six months to make such determinations regarding newly identified wastes. However, if EPA fails to make timely determinations for newly identified wastes, those wastes are not automatically banned from land disposal.

When does the TC become applicable to radioactive mixed wastes?

The TC already applies to radioactive mixed waste (RMW) in those states where RMW is regulated as a RCRA hazardous waste. In states where RMW is not regulated as RCRA hazardous waste (i.e., states with base RCRA authorization, but without mixed waste authority), the TC will become applicable to RMW when the state receives mixed waste authority.

Is there a manual that describes how to do the TCLP?

Yes. The document entitled *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods*, otherwise known as SW-846, describes the test procedures for the TCLP (Method 1311) as well as other waste analysis methods. Moreover, in response to the TC rule, EPA and the Nuclear Regulatory Commission recently published joint guidance on testing requirements for mixed radioactive and hazardous waste (62 *FR* 62079). This guidance emphasizes the value of process knowledge and the flexibility allowed in testing mixed wastes as a way to minimize radiation hazards. EH-413 will keep the field informed as to developments regarding SW-846.

Are the TCLP and/or its applicability likely to change?

Yes. For example, EPA recently announced in the Unified Agenda (64 *FR* 65009; November 22, 1999) its intent to make a final determination by December 2000 of the applicability of the toxicity characteristic rule to petroleum-contaminated media and debris from underground storage tanks. EPA is also reviewing the TC level for silver to determine whether it should be deleted or modified. EPA's Science Advisory Board, the waste management community, and others continue to suggest improvements in the TCLP and the scope of its applicability.

Questions of policy or questions requiring policy decisions will not be dealt with in EH-413 Information Briefs unless that policy has already been established through appropriate documentation. Please refer any questions concerning the subject material covered in this Information Brief to Steven Woodbury, RCRA/CERCLA Division, EH-413, (202) 586-4371, or steven.woodbury@eh.doe.gov.